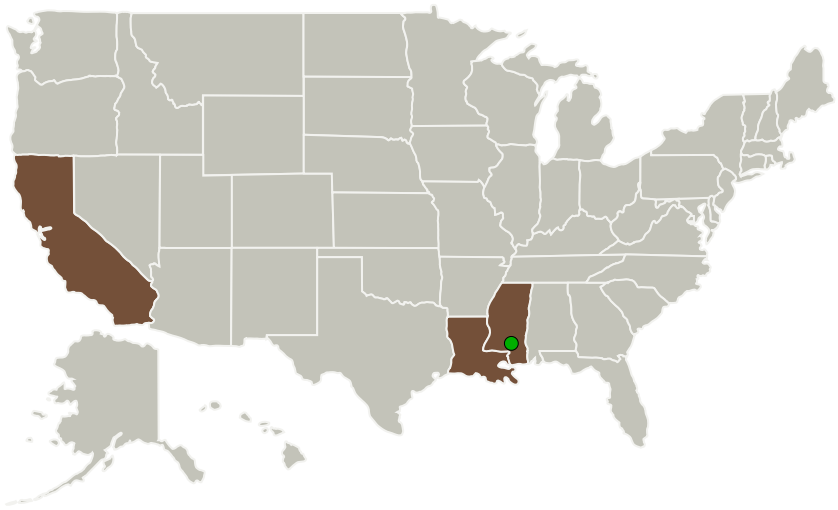
Intelligent Distributed and Ubiquitous Health Management System, Phase I

Completed Technology Project (2012 - 2013)

Project Introduction

American GNC Corporation (AGNC) and Louisiana Tech University (LaTECH) are proposing a breakthrough technology consisting of an innovative system for facilitating the monitoring and management of NASA test facilities (such as rocket engine test stands) and widely distributed support systems (WDSS). This technology, termed the Intelligent Distributed and Ubiquitous Health Management System (IDU-HMS) consists of: (a) a fault aware wireless sensor network (WSN) for monitoring valves, vacuum lines, and pressurized subsystems; (b) local wireless data collection and diagnostic units; (c) a main Web service based health and data unit; and (d) portable Web clients. New and powerful algorithms based on the artificial intelligence paradigm are leveraged for conducting automated anomaly detection and diagnostics. Another key innovation is the ubiquitous information capability enabled by mobile communication technologies as well as secure Internet and wireless local area network (WLAN) connections. The architecture is based on a standardized framework for maximum modularity such that it can be integrated into current support, CBM+ type, and control systems at NASA Stennis Space Center (SSC).

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
American GNC Corporation	Lead Organization	Industry Small Disadvantaged Business (SDB), Women-Owned Small Business (WOSB)	Simi Valley, California
Louisiana Tech University(LA Tech)	Supporting Organization	Academia	Ruston, Louisiana
Stennis Space Center(SSC)	Supporting Organization	NASA Center	Stennis Space Center, Mississippi

Primary U.S. Work Locations	
California	Louisiana
Mississippi	

Project Transitions

February 2012: Project Start

February 2013: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138230)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

American GNC Corporation

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

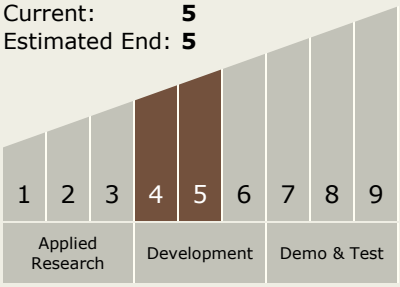
Carlos Torrez

Principal Investigator:

Ratsko Selmic

Technology Maturity (TRL)

Start: **4**
Current: **5**
Estimated End: **5**



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Technology Areas

Primary:

- TX13 Ground, Test, and Surface Systems
  - TX13.4 Mission Success Technologies
    - TX13.4.5 Operations, Health and Maintenance for Ground and Surface Systems

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System